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DECLASS REVIEW by NIMA/DOD

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23 March 1968

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MEMORANDUM FOR THE RECORD

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SUBJECT: Trip Report - [] 3 March 1968

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1. On 3 March 1968, I traveled to [] for the purpose of reviewing [] latest developments in bi-color. Because NPIC is responsible for evaluating the PI applications of bi-color as acquired from the [] camera system, it is imperative that we of the Center be appraised of the state-of-the-art.

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2. My principal contact as [] however, other members of the Intelligence Community were also present to view the bi-color procedures and results. In attendance were:

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Although no official meeting had been called, [] had announced unofficially that the bi-color presentations intended for the J-3 capability report had been completed.

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3. [] bi-color samples in [] possession were positive color transparencies that had been made in two ways. One group was products of positives generated on the Gamma I rectifier at ACIC, St. Louis; the other set was made from positives printed on the [] printer also located at ACIC. [] presented the samples and previewed his presentation scheduled for the J-3 Engineering Evaluation Committee meeting of 6 March 1968.

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GROUP 1
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4. The color positives made from ortho prints are a vast improvement over the prints made from rectified positives. However, the ortho printer introduces distracting scan lines in the image and is a lengthy, time consuming process. A single chip, suitable for bi-color printing requires eight to ten hours of ortho printer machine time. The advantage of the ortho print presentation over that of a rectified version is that the effects of parallax are essentially eliminated and image fringing is therefore reduced.

5. The bi-color photography generated from positives produced in the Gamma I rectifier are in my opinion of little PI value. Image displacement caused by the convergence of the two taking lenses causes severe image (color) fringing. Like the ortho print techniques, the rectified positives must be generated at ACIC. With the present equipment deployment, the areas of intelligence interest would be selected at NPIC, rectified or ortho printed at ACIC, color printed at [] and interpreted at NPIC. All intermediate steps, after NPIC's original choice of target area would be accomplished without benefit of PI liaison.

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6. There are currently two types of viewing instruments suitable for bi-color viewing and/or printing. The additive color printer viewer located at [] accepts two (rectified) black and white positives which it projects in register on a ground glass screen. The instrument is totally optical and has a dynamic resolution capability of 170L/mm. The other available instrument is the Automatic Registration Electronic Stereoscope (ARES) with a bi-color attachment. There is only one ARES equipped with a bi-color viewer. It is the property of [] but is currently on loan to NPIC. The ARES is a purely electronic instrument and accomplishes image rectification internally. It however, is designed as a viewing instrument and is not well suited for making prints of the presentation.

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7. I spent the afternoon of 3 March with [] designer of the ACVP. Although the ACVP was temporarily inoperative, [] described its operation to me. I specifically viewed it with respect to its potential installation and employment at NPIC since that has been suggested by the DD/S&T. Its dimensions are approximately 8' x 3' x 6'. Its estimated weight is 2000-2500

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pounds; it requires 220 volt input; and must be vented to the outside. There are two additional support units with the instrument - a vacuum pump approximately 3' x 1.5' x 1.5' and a blower approximately the same size. A detailed description of the equipment is available in a manual contained in TSSG/TSD files.

8. In my opinion, the ACVP should not be accepted for delivery to NPIC until the bi-color concept is proven to be a useful intelligence tool, and until it is established that the ARES now being tested at NPIC will not do the job. The ARES has the advantage of not requiring 220 volt power supply, it does not require outside venting or a blower and it provides self-contained electronic image rectification. Also, because of its rectification capabilities, the logistics problems associated with making intermediate positives at ACIC, are eliminated. The major disadvantage of the ARES is its poor resolution. However, image registration problems associated with the use of rectified intermediate positives in the ACVP lessen the advantage of that instrument's resolution capabilities. Ortho printed intermediate positives can be registered successfully on the ACVP but the scan lines associated with ortho printing are highly distracting and there is a serious logistic problem in the production phase. As previously stated the ARES is a real time viewer and is not well suited for preparing a permanent record of the screen display. Therefore, if the bi-color concept is successful, NPIC should re-evaluate equipment availability relative to intelligence acquisition requirements.

SIGNED

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Acting Deputy Chief
Image Evaluation Branch
NPIC/TSSG/TSD

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